ABSTRACT

For the purpose of efficient transmission based on the UWB system, first and second baseband waveforms are generated at a cycle equivalent to an integral multiple of a carrier to have a specified phase difference from each other. The first baseband waveform is multiplied by the carrier and a first transmission data sequence to acquire a first transmission waveform. The second baseband waveform is multiplied by a phase shifted carrier and a second transmission data sequence to acquire a second transmission waveform. The first transmission waveform is mixed with the second transmission waveform to acquire a transmission signal. The transmission signal is transmitted as a $\pi/2$ shift BPSK signal to transmit a UWB signal. Selecting the baseband waveforms and the carrier makes it possible to configure the transmission band and easily provide division multiplexing transmission.